

MAR 28 2006

01-ASD-224 (GT)

**IN THE UNITED STATES PATENT & TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

APPL. NO. : 10/060,121
CONFIRMATION NO.: 5887
APPLICANTS : ROBERT P. BENJEY
TITLE : METHOD AND SYSTEM FOR CONTROLLING LIQUID
FUEL AND VAPOR FLOW DURING REFUELING OF A
MOTOR VEHICLE FUEL TANK
FILED : January 31, 2002
ART UNIT : 3753
EXAMINER : JOHN A. RIVELL

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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3/28/06
Date

Teresa Bonsall
Teresa Bonsall

REPLY BRIEF

Sir:

In response to the Examiner's Answer dated March 2, 2006, Appellant responds as follows.

Remarks

In the Examiner's Answer, the Examiner asserted that Appellant's arguments were unpersuasive in view of Aubel's teachings because "the addition of a nozzle seal [like Aubel] effectively eliminates the venting of the of fuel vapor to the atmosphere and to employ the device of Yamazaki et al. with a nozzle seal would only require employment of a certain draft resistance in conduits 23, 27₃ which would accommodate standard pressure sensitive filling nozzles" (p. 7). Appellant respectfully disagrees.

As noted by the Examiner, Yamazaki explains that the draft resistance in the conduits 23, 27₃ is balanced to suppress the amount of evaporative fuel released to the

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atmosphere while preventing an excessive amount of vapor from being sent to the canister (col. 9, lines 3-25). However, Yamazaki also explains that the draft resistance needs to be carefully balanced to minimize vapor escaping to the atmosphere without overloading the canister or creating a vacuum that causes premature nozzle shutoff (col. 9, lines 3-25, col. 1, line 33 to col. 2, line 2).

Thus, contrary to the Examiner's arguments, preventing fuel vapor from venting to the atmosphere is not simply a matter of adding a nozzle seal and then adjusting the draft resistance in the conduits to accommodate pressure sensitive filling nozzles. The reality is much more subtle; fuel vapor must be prevented from escaping to the atmosphere, yet still be generated to some degree to provide enough pressure to prevent premature nozzle shutoff without sending too much vapor to the canister. Yamazaki explicitly recognizes that generating fuel vapor requires drawing fresh air into the filler tube during refueling (col. 9, lines 7-9). Adding Aubel's nozzle seal to Yamazaki would prevent fresh air from being drawn in, causing the rushing fuel to pull the limited amount of air below the seal toward the tank and create a vacuum at the nozzle tip. As noted in the Appeal Brief, if a vacuum forms around the fuel nozzle the interruption in vapor flow around the fuel nozzle will cause the nozzle to shut off prematurely (see, e.g., Aubel at col. 1, line 62 to col. 2, line 2). Thus, placing the seal in Aubel into the filler neck of Yamazaki would render Yamazaki unsatisfactory and inoperative for its intended purpose.

Similarly, modifying the dimensions of the filler neck as taught in Hashimoto would upset the balance between drawn air and fuel vapor, again either causing premature nozzle shut-off or escaping fuel vapors. Like Yamazaki, Hashimoto requires a specific selected amount of air to be drawn into the filler tube 3 during refilling to create negative pressure without causing premature nozzle shut-off (col. 7, lines 26-46). Figure 7 of Hashimoto details the relationship between the amount of vapor to be produced and the amount of air to be drawn into the filler tube during refueling. This analysis in Hashimoto further shows that managing fuel vapor emissions and pressure without shutting off the nozzle is not simply a matter of combining disparate elements from various patents.

While Appellant recognizes that both Hashimoto and Aubel create a vapor pressure drop by blocking fuel vapor recirculation when the fuel tank is full (Examiner's Answer, p. 8), the Examiner ignored the fact that undesirable pressure drops can be

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caused in other ways (i.e., incorporating Aubel's seal into Yamazaki's system), which would cause the pressure-sensitive nozzle to shut-off before the fuel tank is full.

Because there is no motivation to combine Yamazaki, Aubel and Hashimoto in the manner suggested by the Examiner, the final rejection of claims 1-12 is improper and should be withdrawn.

Respectfully submitted,



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Anna M. Shih
Registration No. 36,372
Eaton Corporation
26201 Northwestern Hwy.
P. O. Box 766
Southfield, MI 48037
(248) 226-6821